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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/581,113

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Koshi Takamura

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EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT

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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/581,113	Applicant(s) TAKAMURA ET AL.	
	Examiner Tony Chuo	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-6 are currently pending. The amended claim 6 does overcome the previously stated 102/103 rejections of claim 6. Claims 1-5 are not amended and stand rejected under the previously stated 103 rejection. Therefore, upon further consideration, claims 1-6 are rejected under the following new and previously stated 103 rejections. This action is made FINAL as necessitated by the amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (JP 63-138668) in view of Jansen et al (US 2002/0127362).

The Matsumoto reference discloses a thin air battery comprising: a power generating element composed of a laminate in which air diffusing paper "2", a polymer film (water repellent film), a positive electrode, a separator "4", and a negative electrode "5" are stacked in this order, and an electrolyte is contained in the positive electrode, separator, and negative electrode; and a casing (package) composed of a first sheet layer "1b" having air inlet holes and covering the positive electrode side of the power

Art Unit: 1795

generating element, a third sheet layer "6" covering the negative electrode side of the power generating element, and a second sheet layer "7" located in the peripheral portion between the first sheet layer and the third sheet layer and joined to the two sheet layers (See Abstract and Drawing 3).

However, Matsumoto et al does not expressly teach a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side, wherein the polymer film having hydrogen gas permeability is composed of a material selected from the group consisting of polyethylene, polypropylene, and polysulfone; wherein the polymer film having gas barrier properties is polyethylene naphthalate, polyethylene terephthalate, polyphenylene sulfide, polyamide, polyvinyl chloride, ethylene-vinyl alcohol copolymer, ethylene-vinyl acetate copolymers, and ionomer resins; wherein the polymer film having gas barrier properties is composed of a fluorine-containing polymer material; wherein at least one of the first sheet layer, second sheet layer, and third sheet layer comprises a metal sheet layer that is not corroded by aqueous alkaline solutions; and a lead of the air electrode and a lead of the negative electrode drawn out of the package from between the second sheet layer and the first sheet layer or third sheet layer.

The Jansen reference discloses a battery housing that is made from a film that includes a sealant layer "101", a first layer of metal foil "103" (metal sheet layer not

Art Unit: 1795

corroded by aqueous alkaline solutions), and a protective layer "105", wherein polyethylene and polypropylene are examples of suitable polymers that can be used as the sealant layer and polyester such as polyethylene terephthalate, polyamides, polyvinyl chloride, fluoroplastics, polyphenylene sulfide, ethylene vinyl alcohol, and ethylene vinyl acetate are examples of suitable materials that can be used as the protective layer, wherein the sealant layer is disposed on the inner surface side (See paragraphs [0034],[0035] and Figure 7 and 9). It also discloses battery leads that extend through the housing (See paragraph [0036] and Figure 7). It also discloses that the battery housing can be utilized for zinc-air batteries (See paragraph [0037]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Matsumoto battery to include a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side, wherein the polymer film having hydrogen gas permeability is composed of a material selected from the group consisting of polyethylene, polypropylene, and polysulfone; wherein the polymer film having gas barrier properties is polyethylene naphthalate, polyethylene terephthalate, polyphenylene sulfide, polyamide, polyvinyl chloride, ethylene-vinyl alcohol copolymer, ethylene-vinyl acetate copolymers, and ionomer resins; wherein the polymer film having gas barrier properties is composed of a fluorine-containing polymer material; wherein at least one of the first

Art Unit: 1795

sheet layer, second sheet layer, and third sheet layer comprises a metal sheet layer that is not corroded by aqueous alkaline solutions; and a lead of the air electrode and a lead of the negative electrode drawn out of the package from between the second sheet layer and the first sheet layer or third sheet layer in order to incorporate the advantages of combining a chemically resistant polymer and a relatively low melting point heat-sealable polymer into a single laminate for use in battery housings and to utilize leads to extract electrical energy from the battery (See paragraph [0009]).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibuya et al (US 6291098) in view of Jansen et al (US 2002/0127362).

The Shibuya reference discloses a thin film of a package of a battery comprising: a multi-layered film "4" (first sheet layer), a multi-layered film "4" (third sheet layer), and a heat fusible resin "7" (second sheet layer) located in the peripheral portion between the first sheet layer and the third sheet layer and joined to the two sheet layers, wherein heat fusible resin is made of materials similar to those used for the multi-layered film "4" (See column 5, lines 5-15 and Figure 8). Examiner's note: the recitation "for a package of an alkaline battery" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

However, Shibuya et al does not expressly teach a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side. The Jansen reference discloses a battery housing that is made from a film that includes a sealant layer "101" (alkali resistant polymer film having hydrogen gas permeability) and a protective layer "105" (polymer film having gas barrier properties), wherein polyethylene and polypropylene are examples of suitable polymers that can be used as the sealant layer and polyesters are examples of suitable polymers that can be used as the protective layer, wherein the sealant layer is disposed on the internal surface side (See paragraphs [0034],[0035] and Figure 7 and 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Shibuya package to include a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side in order to incorporate the advantages of combining a chemically resistant polymer and a relatively low melting point heat-sealable polymer into a single laminate for use in battery housings (See paragraph [0009]).

Art Unit: 1795

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sassen (US 2002/0132158) in view of Jansen et al (US 2002/0127362).

The Sassen reference discloses a battery casing comprising: a cell casing "1" (first sheet layer), a cell casing "2" (third sheet layer), and a seal "10" (second sheet layer) located in the peripheral portion between the first sheet layer and the third sheet layer and joined to the two sheet layers, wherein the cell casing may be formed from any suitable material such as plastic (See paragraphs [0020] and Figure 1). Examiner's note: the recitation "for a package of an alkaline battery" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

However, Sassen does not expressly teach a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side. The Jansen reference discloses a battery housing that is made from a film that includes a sealant layer "101" (alkali resistant polymer film having hydrogen gas permeability) and a protective layer "105" (polymer film having gas barrier properties),

Art Unit: 1795

wherein polyethylene and polypropylene are examples of suitable polymers that can be used as the sealant layer and polyesters are examples of suitable polymers that can be used as the protective layer, wherein the sealant layer is disposed on the internal surface side (See paragraphs [0034],[0035] and Figure 7 and 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Sassen battery casing to include a first sheet layer, a second sheet layer, and a third sheet layer, each comprising a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties, wherein in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side in order to incorporate the advantages of combining a chemically resistant polymer and a relatively low melting point heat-sealable polymer into a single laminate for use in battery housings (See paragraph [0009]).

Response to Arguments

6. Applicant's arguments filed 4/6/10 have been fully considered but they are not persuasive.

The applicant argues that Matsumoto is silent as to allowing the hydrogen gas generated inside the battery to permeate outside. Furthermore, Matsumoto discloses that the cover 1 b has oxygen gas permeability, but Matsumoto does not teach or suggest that the negative electrode current collector 6 and the sealing member are gas permeable. Importantly, Matsumoto does not teach or suggest a route for allowing

hydrogen gas generated inside the battery to permeate outside, as provided in the present invention as recited in claim 1.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant further argues that Jansen fails to cure this deficiency in Matsumoto, as Jansen also fails to teach or suggest a configuration that allows hydrogen gas generated inside the battery to permeate outside the battery in an effective manner. On page 3 of the office action mailed January 8, 2010, the Examiner takes the position that because Jansen teaches polyethylene and polypropylene films that Jansen discloses a battery housing hydrogen gas permeability. However, it is the structural configuration of battery package as recited in claim 1, as well as the materials used, that achieve the improved hydrogen discharge of the present invention. As such, a person having ordinary skill in the art would not have found it obvious based on Matsumoto and Jansen to achieve the configuration as recited in claim 1.

In response, the examiner maintains the contention that Matsumoto as modified by Jansen would result in the same structural configuration of battery package as recited in claim 1 as well as the same materials to allow hydrogen gas generated inside the battery to permeate outside the battery. One of ordinary skill in the art would have been able to substitute the improved polymer laminate film of Jansen into the battery

housing of Matsumoto and the results of the substitution would have been predictable. Further, the examiner contends that utilizing the same materials for all components of the battery housing would have simplified the construction of the battery.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Michener can be reached on (571) 272-1424. The fax phone

Art Unit: 1795

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Jennifer K. Michener/

Supervisory Patent Examiner, Art Unit 1795